



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,688	03/27/2006	Jinsong Duan	L9289.06135	7149
52989 7590 03/19/2009 Dickinson Wright PLLC James E. Ledbetter, Esq. International Square 1875 Eye Street, N.W., Suite 1200 Washington, DC 20006				
EXAMINER				
JOSEPH, JAISON				
ART UNIT		PAPER NUMBER		
2611				
MAIL DATE		DELIVERY MODE		
03/19/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/573,688

Applicant(s)

DUAN ET AL.

Examiner

JAISON JOSEPH

Art Unit

2611

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3 - 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al (US Patent 7,280,606).

Regarding claim 1, Kim et al teach a transmission apparatus (see figure 6) comprising: an arrangement determiner that determines a constellation mapping position indicating an arrangement position of each symbol data in the IQ plane when transmission data is retransmitted so that the constellation mapping position becomes different from that in a last transmission (see figure 6, component 670 and column 4, lines 62 – column 5, line 40); a data assigner that assigns transmission data to each

symbol so that the each symbol data with the same amplitude is arranged in the constellation mapping position determined by the arrangement determiner (see figure 6, component 650, 670 figure 7 A-D and column 4, lines 62 – column 5, line 40); and a transmitter that transmits the transmission data that is assigned to the each symbol in the data assigner (see figure 6).

Regarding claim 3, which inherits the limitations of claim 1, Kim et al further teach a data interchanger that interchanges predetermined bits of the transmission data so that a bit arrangement of each symbol when the transmission data is retransmitted becomes different from that in the last transmission, wherein the data assigner assigns the transmission data interchanged in the data interchanger to each symbol (see figure 6, component 650, 670 figure 7 A-D and column 4, lines 62 – column 5, line 40).

Regarding claim 4, Kim et al teach a transmission apparatus (see figure 6) comprising: a data interchanger that interchanges predetermined bits of transmission data so that a bit arrangement of each symbol when the transmission data is retransmitted becomes different from that in a last transmission (see figure 6, component 650, 670 figure 7 A-D and column 4, lines 62 – column 5, line 40); a data assigner that assigns the transmission data interchanged by the data interchanger to each symbol so that each of a plurality of items of symbol data with the same amplitude is arranged in a constellation mapping position indicating an arrangement position of each symbol of the transmission data in the IQ plane (see figure 6, component 650, 670 figure 7 A-D and column 4, lines 62 – column 5, line 40); and a transmitter that

transmits the transmission data that is assigned to the each symbol by the data assigner (see figure 6).

Regarding claim 5, Kim et al teach a base station apparatus having a transmission apparatus (see figure 6), wherein the transmission apparatus comprising: an arrangement determiner that determines a constellation mapping position indicating an arrangement position of each symbol data in the IQ plane when transmission data is retransmitted so that the constellation mapping position becomes different from that in a last transmission (see figure 6, component 650, 670 figure 7 A-D and column 4, lines 62 – column 5, line 40); a data assigner that assigns transmission data to each symbol so that the each symbol data with the same amplitude is arranged in the constellation mapping position determined by the arrangement determiner (see figure 6, component 650, 670 figure 7 A-D and column 4, lines 62 – column 5, line 40); and a transmitter that transmits the transmission data that is assigned to the each symbol by the data assigner (see figure 6).

Regarding claim 6, Kim et al teach a communication terminal apparatus having a transmission apparatus (see figure 6), wherein the transmission apparatus comprising: an arrangement determiner that determines a constellation mapping position indicating an arrangement position of each symbol data in the IQ plane when transmission data is retransmitted so that the constellation mapping position becomes different from that in a last transmission (see figure 6, component 650, 670 figure 7 A-D and column 4, lines 62 – column 5, line 40); a data assigner that assigns transmission data to each symbol so that the each symbol data with the same amplitude is arranged in the constellation

mapping position determined by the arrangement determiner (see figure 6, component 650, 670 figure 7 A-D and column 4, lines 62 – column 5, line 40); and a transmitter that transmits the transmission data that is assigned to the each symbol by the data assigner (see figure 6).

Regarding claim 7, Kim et al teach a transmission method (see figure 6) comprising the steps of: determining a constellation mapping position indicating an arrangement position of each symbol in the IQ plane when transmission data is retransmitted so that the constellation mapping position becomes different from that in a last transmission (see figure 6, component 650, 670 figure 7 A-D and column 4, lines 62 – column 5, line 40); assigning transmission data to the each symbol so that each symbol data is arranged in the determined constellation mapping position (see figure 6, component 650, 670 figure 7 A-D and column 4, lines 62 – column 5, line 40); and transmitting the transmission data assigned to the each symbol (see figure 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al (US Patent 7,280,606).

Regarding claim 2, which inherits the limitations of claim 1, Kim et al teach rearrange (rotate) the constellation mapping position of the last transmission by predetermined angles with an intersection point of the I axis and Q axis as a center in the IQ plane to determine as the constellation mapping point when the transmission data is retransmitted (see figure 7 a – d). Kim et al. does not expressly teach wherein the arrangement determiner rotates the constellation mapping position along a circumference of a circle. However it would be obvious to an ordinary skilled in the art at the time the invention was made to rotate the constellation mapping position of the last transmission by predetermined angles along a circumference of a circle to determine as the constellation mapping point when the transmission data is retransmitted. Kim et al teach rearranging the constellation points on a QAM constellation (see figures 7a -d). Applicant rearranges the constellation mapping on a PSK modulation (see figures 7 – 15). On a PSK constellation all the constellation points lie on a circumference of a circle. Therefore the rotated constellation mapping position of the last transmission by predetermined angles will be along a circumference of a circle. Therefore it would be obvious to an ordinary skilled in the art to modify Kim et al. to obtain the inventions as specified in claim 2. The motivation or suggestion to do so is to use the technique with PSK modulation scheme.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAISON JOSEPH whose telephone number is (571)272-6041. The examiner can normally be reached on M-F 9:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. J./
Examiner, Art Unit 2611

/Chieh M Fan/
Supervisory Patent Examiner, Art Unit 2611